

CLAIMS:

1. A switching device for switching between two states such as 1 or 0 in computing or on off states. Wherein the switched state depends on the particle wave function size in space.
2. A switching device as in claim 1 wherein one of the states is indicated by a certain particle wave function size and the other state is indicated by a bigger particle wave function size.
3. A switching device as in claim 2 wherein the wave function size is referred to the uncertainly distribution in space of the particle wave function.
4. A switching device as in claim 2 or 3 wherein the term size in space referred to a certain one or two dimensions.
5. A switching device as in claim 1 wherein the wave function size depends on the particle total energy. The switching between the device two states is done by changing the particle total energy.
6. A switching device as in claim 1 wherein the wave

function size depends on the particle kinetic energy.

The switching between the device two states is done by changing the particle kinetic energy.

7. A switching device as in claim 1 wherein the switching between the device two states is done by changing the particle potential energy.
8. A switching device as in claim 1 wherein the switching between the two states is achieved by transmitting energy from an additional particle the particle represented the device switching state .
9. A switching device as in claim 8 wherein the reverse switching to the initial state is achieved by transmitting energy from the switched particle to an additional particle.
10. A switching device as in claim 1 wherein the switching between the two states is achieved by photon absorption by the switched particle.
11. A switching device as in claim 10 wherein the reverse switching between the two states is achieved by photon emission by the switched particle.
12. A switching device as in claim 10 wherein the reverse switching between the two states is achieved by the

switched particle interaction with other particle or phonon.

13.A switching device as in claim 1 wherein the switching between the two states is achieved by phonon or phonons energy exchange with the switched particle.

14.A switching device as in claim 1 wherein the switching between the two sizes of the particle wave function is achieved by potential energy interaction.

15.A switching device as in claim 1 wherein the switching between the two sizes of the particle wave function is achieved by change of electric potential.

16.A switching device as in claim 1 comprising two boundaries in two sides of the switching particle. Wherein the two switching states is detected by the corresponding values of the potential between the two boundaries.

17.A switching device as in claim 1 comprising:

(a) a first part with boundaries at the height of the particle wave function in the first state .

(b) a second part above the first part which has charged zones on the cavity sides and is in the height of the particle at its second state. Thus creating potential along the second part of the cavity.

The particle state is detected by the charge potential value between the two charged zones on second part.

18.A switching device as in claim 15,17 wherein the two state is detected by the charge potential between the two boundaries and this charge potential is influenced by a screening effect of the switched particle wave function between the two boundaries.

19.A switching device as in claim 1. Wherein the two switching particle states is detected by photon detection.

20.A switching device as in claim 19 wherein the photon detection is based on photon scattering , photon absorbsion or photon transmission.

21. A switching device for switching between two states such as 1 or 0 in computing or on off states. Wherein the switched state depends on the particle wave function dynamic size change in space .Where the dynamics change corresponding to a charge current.

22. A switching device for switching between two states such as 1 or 0 in computing or on off states comprising:

(a) two conductive planes.

- (b) an electron which can be switched between two state
 where in one state the particle move to a region between the two plane
 and the in second state the particle is moving outside the region between
 the two planes. wherein in this claim the movement is translation
 movement of the all the particle and not
 wave function expansion as in the previous claims
- (c) the two state are detected by the difference in the
 charge potential between the two planes.

23. A switching device as in claim 1. comprising:

- (a) a charge current element (element a)
- (b) an element (element b) close to the charge current element wherein
 this element there is a limited region where electric charge in this region
 can influence the current in the charge current element (element a) .
- (c) a particle in element b that can be in two states in the first state the
 wave function size of the particle is not large enough to be in the limited
 region of element b. In the second state the particle wavefunction is large
 enough to be in the limited region as well thereby influencing the current
 value in element a.
- (d) the switching between the two particle states is done
 by any of the method in claims 5-14.

23a. A switching device as in claim 1.comprizing two regions which create a repulsive potential on a particle between them. The particle size is depends on the repulsive potential value by reducing the repulsive potential value the particle wave function size expands, thus achieving two states denoted by the particle wave function sizes. To revert to the initial state the repulsive potential is revert to its initial value.

23b. A switching device as in claim 1.comprizing two regions which create a repulsive potential on a particle between them.The particle size is depends on the repulsive potential value by reducing the repulsive potential value the particle wave function size expands and an electric current is obtained in the process. The switching states are denoted by an on current state and an off current state.

24. A switching device as in claim 1-23 wherein the

term particle refer to one or more than one electron or proton .

That have a referred function as the referred particle in claim 1-23.

25. A switching device as in claim 19-21 wherein the

particle can be one or more than one neutron or photon.That have a referred function as the referred particle in claim 19-21

26. A switching device as in claim 1-25 wherein instead of denoting

two states by particle wave function filled of a cavity zone at higher region. The two states are denoted by particle wave function filled a limited region in the cavity as one switching state and a second switching state by the particle wave function filled a wider zone in the cavity due to energy gain by the particle, but on the same height level as the first state.

27. A switching device as in claim 1-26 wherein the switching device has application of basic detection unit .